

CLAIMS

What is claimed is:

1. A heat-developable image-recording material comprising on a support:

a silver-supplying layer containing an organic silver salt, a reducing agent, an organic binder and substantially no photosensitive silver halide; and

a separate photosensitive layer containing a photosensitive silver halide;

the heat-developable image-recording material further containing an electron-transfer agent.

2. The heat-developable image-recording material according to Claim 1 wherein the organic binder is formed from a polymer latex dispersed in an aqueous medium.

3. The heat-developable image-recording material according to Claim 2, wherein the reducing agent has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

4. The heat-developable image-recording material according to Claim 2 , wherein the silver-supplying layer contains a halogen precursor.

5. The heat-developable image-recording material according to Claim 3, wherein the silver-supplying layer contains a halogen precursor.

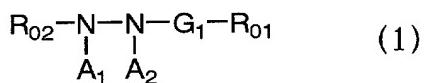
6. The heat-developable image-recording material according to Claim 4, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

7. The heat-developable image-recording material according to Claim 5, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

8. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

9. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

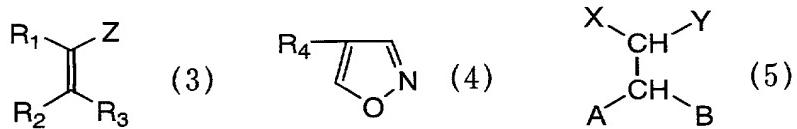
10. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a hydrazine derivative represented by the general formula below:



wherein R_{02} denotes an aliphatic group or an aromatic group, R_{01} denotes hydrogen, alkyl, aryl, an unsaturated heterocyclic group, alkoxy,

aryoxy, amino or hydrazino, G₁ denotes -CO-, -SO₂-, -SO-, -P(O)-, -R₀₃P(O)-, -COCO-, thionylcarbonyl or iminomethylene, and A₁ and A₂ independently denote hydrogen, or substituted or unsubstituted alkylsulfonyl and R₀₃ is chosen from the groups defined for R₀₁ and may be the same as or different from R₀₁.

11. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of substituted alkene derivatives, substituted isoxazole derivatives and acetal compounds represented by the following general formulae (3) to (5)



wherein general formula (3) R₁, R₂ and R₃ independently denote hydrogen or a substituent, and Z denotes an electron withdrawing group or a silyl group, in general formula (3), R₁ and Z, R₂ and R₃, R₁ and R₂, or R₃ and Z may be bonded together to form a cyclic structure, in general formula (4), R₄ denotes a substituent, in general formula (5), X and Y independently represent hydrogen or a substituent; A and B independently denote alkoxy, alkylthio, alkylamino, aryloxy, arylthio, anilino, heterocyclic oxy, heterocyclic thio or heterocyclic amino, and in general formula (5), X and Y, and A and B may be bonded together to form a cyclic structure.

12. A method for forming an image by heat development comprising:

imagewise exposing a heat-developable image-recording material comprising, on a support,
a silver-supplying layer containing an organic silver salt, a reducing agent, and an organic binder, and
a separate photosensitive layer containing a photosensitive silver halide,
the heat-developable image-recording material further containing an electron-transfer agent; and then

heat-developing the heat-developable image-recording material;
whereby development of the photosensitive layer forms a silver image in the silver-supplying layer.

13. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains substantially no photosensitive silver halide.

14. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains a halogen precursor.

15. The method for forming an image by heat development according to 12, wherein the photosensitive layer contains a reducing agent.